NSF'S CLIMATE CHANGE EDUCATION PARTNERSHIP PROGRAM: PHASE II (CCEP-II)

An *Informational Presentation* to the NOAA Education Council

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Purpose of the Presentation:

- Provide an update on recent NSF climate change education activities
- Consider opportunities for future collaborations related to climate change education





CCEP Program History

- Primary activity of NSF Climate Change Education (CCE) program [but lots of other CCE efforts funded through core]
- CCE created by Congressional action in FY09
  - $10M each year in FY09, FY10, FY11, FY12; FY13??
- Managed by CCE Working Group
  - Education & Human Resources (EHR), Geosciences (GEO), Biological Sciences (BIO), Office of Polar Programs (OPP)
- FY09 funding supported 10 CCE projects, including:
  - Climate Literacy and Energy Awareness Network (CLEAN)
  - Climate, Adaptation, Mitigation E-Learning (CAMEL)
  - National Research Council Climate Change Education Roundtable
- CCEP Program formally launched in FY10

CCEP Program Goals & Structure

- To increase adoption of effective, high-quality educational programs & resources related to the science of climate change & its impacts, through a coordinated national network of regionally- or thematically-based partnerships
- Partnerships require three types of expertise:
  - Climate Scientists; Learning Scientists; Education Practitioners
- Two Phase Program – competed once
  - Phase I (FY10-11) – Fifteen 2-yr awards ($1M each)
    - Supplemental funding available in FY11
  - Phase II (FY12-FY16) – Six 5-yr awards (~$6M each)
- CCEP is a component of the NSF Science, Engineering, and Education for Sustainability (SEES) initiative:

www.nsf.gov/sees/

Phase II CCEP Competition

- Proposal deadline: March 2012
  - Prior CCEP-I funding not an eligibility requirement
  - No Collaborative Proposals (one lead institution)
- Merit Review Panel
  - NSF Intellectual Merit & Broader Impacts Criteria
  - Additional Review Criteria in CCEP-II solicitation
- Post-Panel Q&A by email
  - Follow-up on questions raised by panel for top 12 projects
- Virtual Reverse Site Visits
  - Conference call with top 7 projects (same questions asked)
- Awards made through Cooperative Agreements

CCEP-II Awards

- MADE-CLEAR: Maryland-Delaware Climate Change Education, Assessment, and Research (#1239758) - $5.6 M
- Making Global Climate Science Local: Implementing an Effective Model to Educate Key Influentials and Community Leaders (#1239797) - $4.9 M
- Pacific Islands Climate Change Education Partnership (#1239733) - $5.9 M
- Polar Learning and Responding: PoLAR Climate Change (#1239783) - $5.7 M
- Climate and Urban Systems Partnership (CUSP) (#1239782) - $5.9 M
- National Network for Ocean and Climate Change (#1239775) - $5.5 M

MADE CLEAR: Maryland and Delaware Climate Change Education, Assessment and Research

- Principals
  - Don Boesch (UMCES)
    Nancy Shapiro (UMD)
    Nancy Brickhouse (UD)
    Nancy Targett (UD)
  - Other partners: state universities; Maryland Public TV

- Goals
  - To embed climate science across the K-16 curriculum and serve the diverse audiences of the two states
  - To build institutional capacity and prepare K-12 educators & faculty for teaching about climate and climate change

Important Attributes

- Leverages Race-to-the Top funding in MD & DE
- Integrates with Next Generation Science Standards and state environmental literacy requirements
  - Seeking to establish a national model
- Socio-cultural diversity within small geographic footprint provides rich learning opportunities
- Includes professional development for teachers and faculty; focus on critical thinking and inquiry skills
- Partnership with state Departments of Education
  - Build on-line learning communities for educators
  - Address policy issues to effect systemic change

Making Global Climate Science Local: Implementing an Effective Model to Educate Key Influentials and Community Leaders

- Principals
  - Michel Boudrias (U San Diego)
    Mica Estrada (CSU San Marcos)
    Alexander Gershunov (Scripps/UCSD)
    Jeanne Silva-Send (U San Diego)
    Steve Alexander (SAG)

- Goals
  - To implement a San Diego-region climate science education program based on local impacts for highly-influential leaders and their communities
  - To test models for educating Key Influentials and using them for further transmission of knowledge

Important Attributes

- Updating locally-relevant climate science knowledge
- Adapting existing education resources for non-traditional learners
- Developing videos on local climate impacts
- Incorporating a Tripartite Integration Model of Social Influence (efficacy, identity, values)
- Conducting social network analysis of regional KI's
- Using social media marketing tools to reach a variety of audiences, including Native American and Hispanic
- Working to establish a replicable model and the process resources to enable replication in other communities

Pacific islands Climate Education Partnership II

- Principals
  - Sharon Nelson-Barber (PREL)
    Art Sussman (WestEd)
    Chip Fletcher (U Hawaii Manoa)
    Don Hess (College of the Marshall Islands)
    >60 other partners in US Affiliated Pacific Islands

- Goals
  - Implement culturally-responsive, effective K–14 educational programs and resources focused on the science of climate change and its impacts on Pacific island communities

  - Engage local communities in building internal capacities for refining and improving their K–14 science education, building upon local knowledge, cultural infrastructure, and community adaptation strategies

Important Attributes

- Exemplifies modern science and honors indigenous environmental knowledge
- Addresses the urgency of climate change impacts in the region
- Focuses on adaptation and empowerment through understanding of climate change and its impacts
- Substantial diversity among the different islands
- Includes strategies for culturally-relevant assessment
- Four program components:
  - Creation of a climate education framework for K-14
  - Cataloguing indigenous environmental knowledge and practice
  - Learning and teaching
    - Climate Education Certificate program
    - Curriculum implementation & Teacher professional development
  - Project-based learning through community-school partnerships

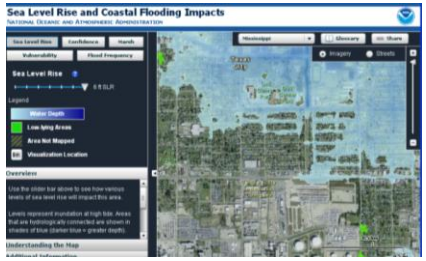
Polar Learning and Responding: PoLAR Climate Change Education Partnership

- Principals
  - Stephanie Pfirman (Barnard College/Columbia)
    Joey Lee (Teachers College)
    Elena Sparrow (University Of Alaska Fairbanks)
    Rob Steiner (American Museum Of Natural History)
    Peter Schlosser (Lamont Doherty Earth Observatory)

- Goals
  - To deepen adult learner awareness and understanding about climate change and inform responses to impacts in the Polar Regions through engaged problem-solving
  - To develop and provide transformative educational approaches that are easy to disseminate and exciting to use in homes, museums, classrooms, and communities

Important Attributes

- Exploring "gaming" techniques for engagement & education
  - Cross-Platform-Polar Explorer (data access)
  - Future Coast (reality game; crowd-sourcing)
  - Arctic Ecosystem (card game)
  - Marine Spatial Planning (scenario exploration)
  - Social networking (gamification)



- Based in communication psychology theories
- Serving as a hub of communication, coordination and dissemination of information on polar climate change

- Engaging diverse communities through professional development & public outreach to key stakeholders
  - Radio programs for community engagement
  - Camp ReAC
  - Online AMNH course for educators

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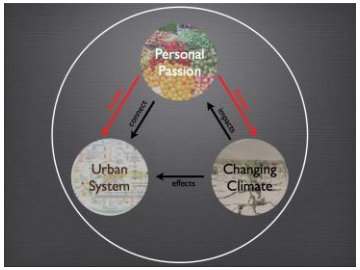
Climate and Urban Systems Partnership (CUSP)

- Principals
  - Steven Snyder (Franklin Institute)
    Kevin Crowley (Univ. of Pittsburgh)
    Radley Horton (Columbia University)
  - Other partners: Carnegie Museum of Natural History; New York Hall of Science; Marian Koshland Science Museum

- Goals
  - To increase urban residents' understanding of and engagement with climate change through networked community organizations that deliver coordinated, city-wide programming [NYC, Philadelphia, Pittsburg, Washington, DC]
  - To develop climate education materials that connect personal passions to climate change

Important Attributes

- Leveraging affinity group membership and identity
- Using informal education and entertainment programming to communicate about climate change and its impacts
- Exploring multiplier effect across different alternative learning platforms
- Focus on diverse, environmentally-disconnected, urban audiences
- Peer support for community providers
- Four strategies being tested, then replicated:
  - Physical communities (neighborhoods)
  - Virtual communities (digital)
  - Temporal communities (festivals)
  - Communities of practice



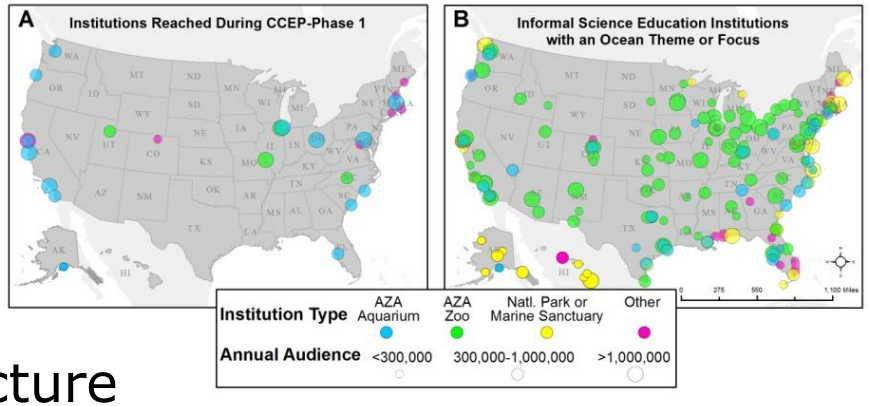
National Network for Ocean and Climate Change Interpretation (NNOCCI)

- Principals
  - William Spitzer (New England Aquarium)
    Susan Bales (FrameWorks Institute)
    Paul Boyle (Assoc. Zoos & Aquaria)
    James Yoder (WHOI)
  - Partnership with 140 Informal Science Ed institutions

- Goals
  - To create a national network of informal science education centers and ocean scientists working together to advance public discourse about climate change
  - Foster a new interpretive "culture of communication" in the informal science education community

Important Attributes

- Large national reach through 140 partner AZA institutions
- "Interpretive" approach
  - "Translation" not just "information"
  - Connect to commonly held values and concepts
  - Illustrate the big picture
  - Link causes and effects
  - Point to solutions
- Study Circles for interpreters
- Youth-focused training
- Peer support and web infrastructure
- Communication workshops for young scientists
- Regional leadership and engagement in public discourse



CCEP Alliance & Alliance Office

- Purpose:
  - Provide some ‘glue’ for the six projects
  - Forum for identifying common needs/issues and sharing best practices and resources worth replicating across the aggregated network
  - Implement common program evaluation activities (supported through a separate contract)
- Membership: Lead PI’s of the six projects
- Small CCEP Alliance Office (CCEP-AO)
  - Convene PI meetings and facilitate communications
  - Conduct outreach and disseminate resources to larger community

Opportunities for Collaboration

- On-going Tri-agency Climate Education efforts
  - Joint NASA-NOAA-NSF CCE PI meetings
  - TrACE Catalog of resources
- Implementation of common program evaluation
- Potential of providing supplemental funding to CCEP-AO for special projects
- Augmentation of partnerships, leveraging NOAA assets and scientists
- Dissemination and scale-up of CCEP resources through NOAA networks